

**METHOD AND APPARATUS FOR COOLING POWER SUPPLY
WIRES USED TO DRIVE STAGES IN ELECTRON BEAM
LITHOGRAPHY MACHINES**

ABSTRACT OF THE DISCLOSURE

The invention comprises methods and apparatus for cooling electrical leads in an electron beam lithography system. In one embodiment the invention comprises an electron beam projection system including at least one process chamber, containing therein, at least one movable stage and at least one electric stage motor for moving the stage, wherein the electrical stage motor includes magnetic coils encased in a coolant jacket which encloses the coils and encloses a coolant material. The coolant jacket includes coolant input lines for supplying coolant to the coolant jacket and includes coolant return lines for allowing the coolant to flow out of the coolant jacket. The process chamber includes electrical leads for supplying electrical current to systems contained within the process chamber and the electrical leads are cooled by passing them through the coolant lines.